Gallic acid

- Mitochondrial dysfunction and cell death induced by Toona sinensis leaf extracts through MEK/ERK signaling in glioblastoma cells
- Injectable Nanocomposite Hydrogels for Intervertebral Disc Degeneration: Combating Oxidative Stress, Mitochondrial Dysfunction, and Ferroptosis
- Gallic acid alleviates ferroptosis by negatively regulating APOC3 and improves nerve function deficit caused by traumatic brain injury
- Corilagin Attenuates Neuronal Apoptosis and Ferroptosis of Parkinson's Disease through Regulating the TLR4/Src/NOX2 Signaling Pathway
- Comprehensive Analysis of Metabolic Changes in Mice Exposed to Corilagin Based on GC-MS Analysis
- Gallic acid showed neuroprotection against endoplasmic reticulum stress in rats
- Gallic acid suppresses the progression of clear cell renal cell carcinoma through inducing autophagy via the PI3K/Akt/Atg16L1 signaling pathway
- Gallic acid in theabrownin suppresses cell proliferation and migration in non-small cell lung carcinoma via autophagy inhibition

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The bioactive extract of green tea, theabrownin (TB), is known to exhibit pro-apoptotic and antitumor effects on non-small cell lung cancer (NSCLC). Gallic acid (GA) is a crucial component of TB; however, its mechanism of action in NSCLC has been rarely studied. To date, little attention has been paid to the anti-NSCLC activity of GA. Therefore, the present study investigated the effects of GA in vivo and in vitro. Cell Counting Kit (CCK)-8 assay, DAPI staining and flow cytometry, wound-healing assay and western blotting were used to assess cell viability, apoptosis, migration and protein expression, respectively. In addition, a xenograft model was generated, and TUNEL assay and immunohistochemistry analysis were performed. The CCK-8 data showed that the viability of H1299 cells was significantly inhibited by GA in a dose- and time-dependent manner. DAPI staining, Annexin-V/PI staining and wound-healing data showed that GA exerted pro-apoptotic and anti-migratory effects on H1299 cells in a dose-dependent manner. Furthermore, the results of western blotting showed that GA significantly upregulated the levels of pro-apoptotic proteins [cleaved (c-)PARP, c-caspase8, c-caspase-9 and the ratio of γ-H2A.X/H2A.X]. In vivo data confirmed the antitumor effect of GA through apoptosis induction in an autophagy-dependent manner. In conclusion, the present study confirmed the anti-proliferative, pro-apoptotic and anti-migratory effects of GA against NSCLC in vitro and in vivo, providing considerable evidence for its potential as a novel candidate for the treatment of NSCLC [1)].

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coordination polymer copper-gallic acid (Cu-GA) nanorods with multi-enzyme activity is successfully prepared for efficient wound treatment of bacterial infection, which can effectively promote wound healing. Cu-GA can be efficiently prepared by a simple solution method and had good physiological stability. Interestingly, Cu-GA shows enhanced multienzyme activity (peroxidase, glutathione peroxidase, and superoxide dismutase), which can produce a large number of reactive oxygen species (ROS) under acidic conditions while scavenging ROS under neutral conditions. In acidic environment, Cu-GA possesses POD (peroxidase)-like and glutathione peroxidase (GSH-Px)-like

catalytic activities that is capable of killing bacteria; but in neutral environment, Cu-GA exhibits superoxide dismutase (SOD)-like catalytic activity that can scavenge ROS and promote wound healing. In vivo studies show that Cu-GA can promote wound infection healing and have good biosafety. Cu-GA contributes to the healing of infected wounds by inhibiting bacterial growth, scavenging reactive oxygen species, and promoting angiogenesis. STATEMENT OF SIGNIFICANCE: Cu-GA-coordinated polymer nanozymes with multienzyme activity were successfully prepared for efficient wound treatment of bacterial infection, which could effectively promote wound healing. Interestingly, Cu-GA exhibited enhanced multienzyme activity (peroxidase, glutathione peroxidase, and superoxide dismutase), which could produce a large number of reactive oxygen species (ROS) under acidic conditions and scavenge ROS under neutral conditions. In vitro and in vivo studies demonstrated that Cu-GA was capable of killing bacteria, controlling inflammation, and promoting angiogenesis [2].

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Tian X, Xu J, Ye Y, Xiao X, Yan L, Yu S, Cai J, Du Q, Dong X, Zhou L, Shan L, Yuan Q. Gallic acid in theabrownin suppresses cell proliferation and migration in non-small cell lung carcinoma via autophagy inhibition. Oncol Lett. 2023 May 23;26(1):294. doi: 10.3892/ol.2023.13880. PMID: 37274480; PMCID: PMC10236267.

2)
Tian H, Yan J, Zhang W, Li H, Jiang S, Qian H, Chen X, Dai X, Wang X. Cu-GA-coordination polymer nanozymes with triple enzymatic activity for wound disinfection and accelerated wound healing. Acta Biomater. 2023 Jun 1:S1742-7061(23)00313-6. doi: 10.1016/j.actbio.2023.05.048. Epub ahead of print. PMID: 37270076.

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